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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/829,341 | 04/09/2001 | Donald Craig Foster | M-9950 US | 1350 |

7590 07/16/2003

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| EXAMINER |
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DINH, TUAN T

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

2827

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|----------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 09/829,341 | | FOSTER, DONALD CRAIG | |
| | Examiner | | Art Unit | |
| | Tuan T Dinh | | 2827 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 33-50 is/are pending in the application.
- 4a) Of the above claim(s) 3,8-12,37,42-45 and 48-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2,4-7,13-14,3-36,38-41,46-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 39-41, and 46-47 are now rejoin to a set of elected group claims and specie III (figure 3B, claims 1-2, 4-7, 13-14, 33-36, 38-41, and 46-47).

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 4-7, 13-14, 33-36, and 38-41, and 46-47 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamaguchi et al. (references cited by applicant, hereafter Yam).

As to claim 1, Yam discloses a semiconductor die package as shown in figures 1-25 comprising:

conductive outer leads (24, column 11, lines 13-44) having first ends extending outside an encapsulant body (72-figure 25, column 20, lines 59-60) of the package and second ends extending into an interior of the encapsulant body (72) of the package (see figure 25);

conductive inner leads (23, column 11, line 10, see figures 1-7) within the encapsulant body and having first ends (26, 27-figure 11, 66-figures 23, 25) extending

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to and electrically accessible through a first surface of the encapsulant body of the package; and

a first die (70-figure 25) within the encapsulant body (72) electrically connected to the inner and outer leads.

Regarding claims 39, 41, Yam discloses the package as shown in figures 1-25 comprising:

a lead frame (21) having external leads (24);

internal leads (23) electrically isolated from the external leads (24) and secured to the lead frame (21);

means (insulator 25, column 11, line 16) for securing and electrically isolated the internal leads from each other;

a die (30-figure 11, 70-figure 25) electrically coupled to the internal and external leads (23, 24); and

means (72) for encapsulating the die and the portion of the internal and external leads (23, 24), wherein a first end of at least some of the internal leads (projections (26, 27, 66) is exposed through a bottom surface of the means for encapsulating (72-figure 25).

Regarding claim 46, Yam discloses the package as shown in figures 1-25 comprising:

a die (30, 70);

an enclosure (72-figure 25) protecting the die;

external lead (24) each having first and second ends, wherein the first end extend beyond the enclosure (72) and the second ends are electrically coupled to the die; and

internal leads (23) having at least first ends (26, 27, 66) exposed through the enclosure, wherein the die is electrically coupled to the internal leads, and wherein the internal leads are electrically isolated from the external leads (24).

As to claims 2 and 38, Yam discloses the package as shown in figures 1-25 wherein the second ends of the outer leads do not extend beyond the first ends of the inner leads (see figure 1).

As to claim 4, Yam discloses the package as shown in figures 1-25 wherein the first surface is a bottom surface.

As to claims 6, 47, Yam discloses the package as shown in figures 1-25 wherein the first ends of the inner leads (26) are approximately co-planar with the first ends of the outer leads (20).

As to claim 7, Yam discloses the package as shown in figures 1-25 wherein the first die (30, 70) is positioned above the inner leads (23).

As to claim 13, Yam discloses the package as shown in figures 1-2 wherein the inner leads (26), further comprise an interior portion (insulator 25), electrically accessible through the first surface, and wherein the die is further electrically coupled to the interior portion.

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As to claims 33, 35, 40, Yam discloses the package as shown in figures 1-25 wherein the conductive inner leads (23) are formed from an internal paddle area (die pad of a lead frame 21), and the die is attached to the internal paddle area.

As to claim 34, Yam discloses the package as shown in figures 1-25 further comprising means for (insulator 25) securing and electrically isolating the conductive inner leads.

As to claim 36, Yam discloses the package as shown in figures 1-25 wherein the first ends of the inner leads are closer to the die than the first ends of the outer leads.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi et al. ('146) in view of Liang et al. (U. S. Patent 5,332,864, submitted by applicant).

As to claims 5 and 14, Yam does not disclose a printed circuit board (14) electrically coupled to the outer and inner leads and the interior portion.

Liang shows the package disclosed in figures 1-2 having inner and outer leads (26, 20) and an interior portion electrically coupled to a printed circuit board (PCB, interposer 14, column 3, line 33).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to have leads and an interior portion of a semiconductor package (components) electrically coupled to the PCB as taught by Liang to employ the package of Yamaguchi in order to perform functionality of input/output signals of components mounted on the PCB.

Response to Arguments

5. Applicant's arguments with respect to claims 1-2, 4-7, 13-14, 33-36, 38-41, and 46-47 have been considered but are moot in view of the new ground(s) of rejection.

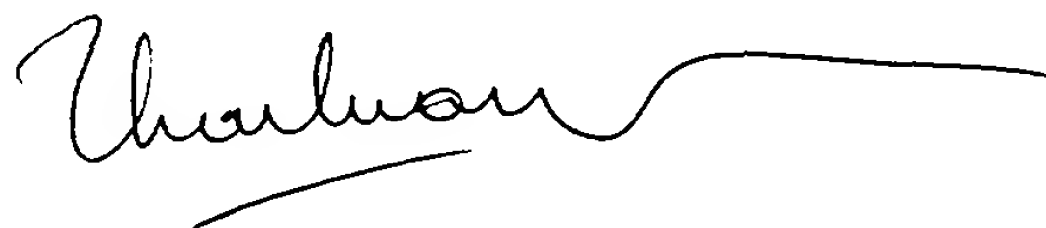
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TD
July 10, 2003.


Tuan T Dinh